

**Figure 1**  
**(Prior Art)**

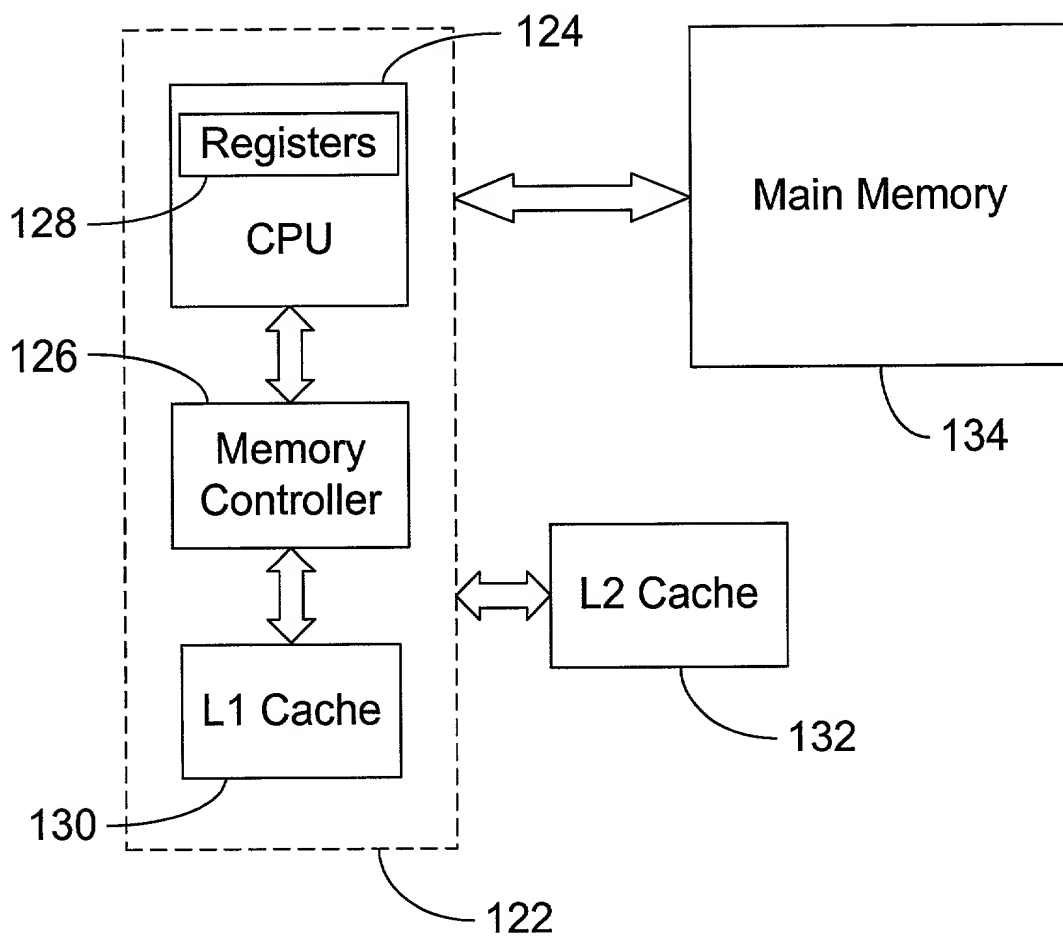
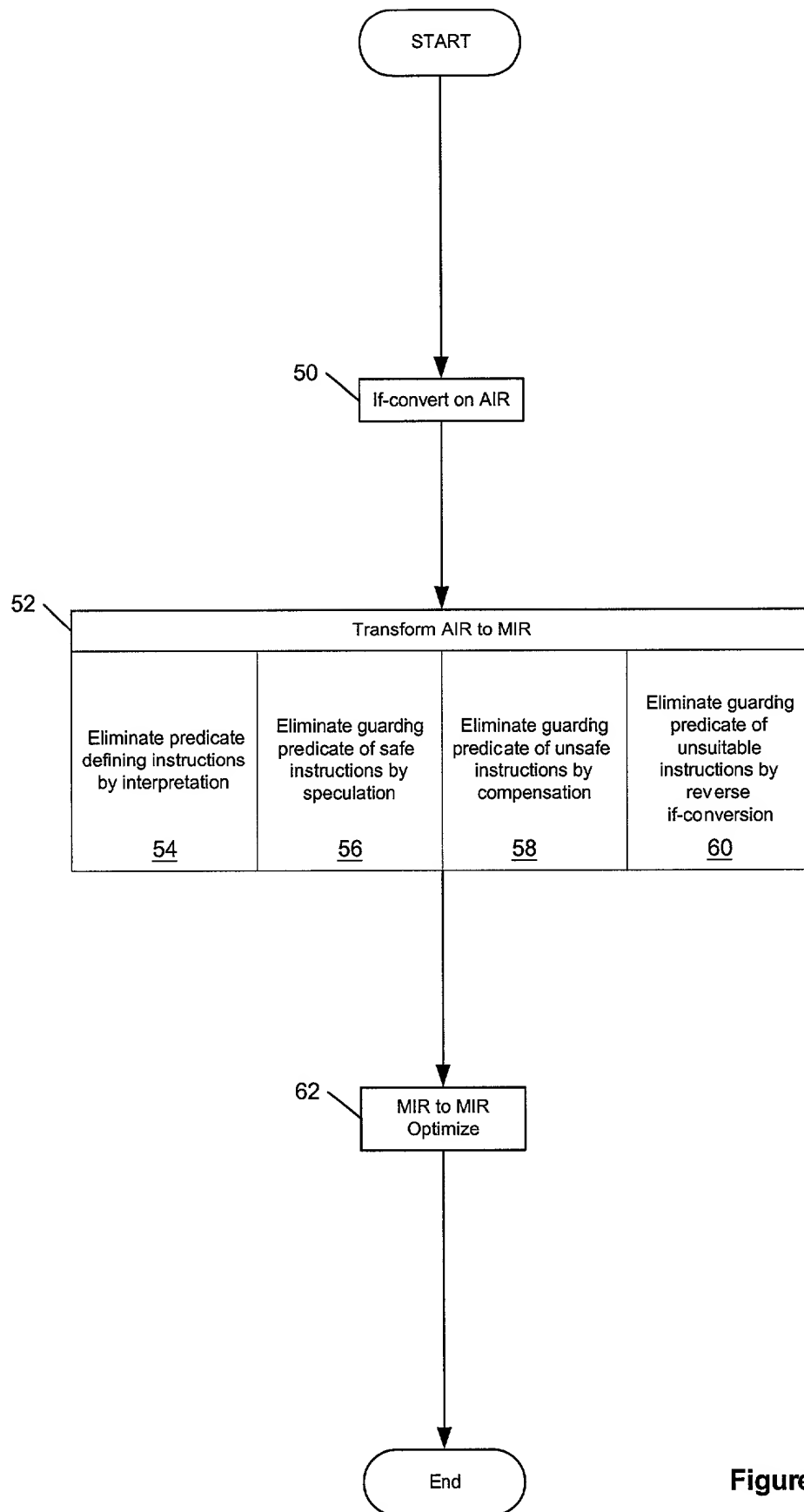


Figure 2



**Figure 3**

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DO 65 I=1,NOPAR
  IF (VALUE(LOCV+I).EQ.AUNDEF) GO TO 62
  IF (IVCHK(LOCM+I).LT.0) GO TO 55
  IF (VALUE(LOCV+I).LT.0.0D0) GO TO 62
55  IF (ITAB(I).NE.0) GO TO 65
    ITAB(I)=IFMT(LOCM+I)
    GO TO 65
62  VALUE(LOCV+I)=DEFVAL(LOCM+I)
65  CONTINUE.
```

**Figure 4**

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!Loop={ B1 B2 B3 B4 B5 B6 B7}
B1: !(ki=if,fl=H,dot=B7,op=4,do=B0,po=B7)
    t113 = lddf(t110)
    t114 = fcmpd(t113,t38)
    -t118 = fbe,pn(t114,B6)
    -t120 = nop()
B2: !(ki=if,op=4,do=B1,po=B7)
    t19 = ld(t70)
    t60 = cmp(t19,0)
    -t123 = bl,pn(t60,B4)
    -t125 = nop()
B3: !(ki=if,op=3,do=B2,po=B7)
    t126 = fcmped(t113,t20)
    -t129 = fbl,pn(t126,B6)
    -t131 = nop()
B4: !(ki=if,op=4,do=B2,po=B7)
    t19 = ld(t109)
    t60 = cmp(t19,0)
    -t135 = bne,pn(t60,B7)
    -t137 = nop()
B5: !(ki=go,op=4,do=B4,po=B7)
    t19 = ld(t111)
    -t140 = st(t19,t109)
    -t142 = ba(t60,B7)
    -t144 = nop()
B6: !(ki=go,op=2,do=B1,po=B7)
    t145 = lddf(t71)
    -t147 = stdf(t145,t110)
B7: !(ki=if,fl=T,doh=B1,op=9,dø=B1)
    t68 = add(t68,1)
    t71 = add(t71,8)
    t110 = add(t110,8)
    t70 = add(t70,4)
    t111 = add(t111,4)
    t109 = add(t109,4)
    t60 = cmp(t68,t59)
    -t150 = ble,pn(t60,B1)
    -t152 = nop()

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Figure 5

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B1: !(ki=if,fl=HTRK,op=30,do=B0,po=B7)
  t113 = lddf(t110) !o [1] n1
  t114 = fcmpd(t113,t38) ! [2 1] n3
  P7 = tfbe(t114,0) ! [3 2] n5
  P6 = mov(0) ! [4] n6
  P5 = mov(0) ! [5] n6
  P4 = mov(0) ! [6] n6
  P3 = tfbe(t114,1) ! [7 2] n8
  t19 = ld(t70) &P7 ! [8] n10
  t60 = cmp(t19,0) &P7 ! [9 8] n11
  P6 = tbl(t60,0) &P7 ! [10 9] n12
  P5 = tbl(t60,1) &P7 ! [11 9] n13
  t126 = fcmpd(t113,t20) &P6 ! [12 1] n15
  P5 = tfbl(t126,0) &P6 ! [13 12] n16
  P3 = tfbl(t126,1) &P6 ! [14 12] n17
  t19 = ld(t109) &P5 ! [15] n19
  t60 = cmp(t19,0) &P5 ! [16 15] n20
  P4 = tbne(t60,0) &P5 ! [17 16] n21
  t19 = ld(t111) &P4 ! [18] n23
  -t140 = st(t19,t109) &P4 ! [19 18] n24
  t145 = lddf(t71) &P3 ! [20] n26
  -t147 = stdf(t145,t110) &P3 ! [21 20] n27
  t68 = add(t68,1) !o [22] n29
  t71 = add(t71,8) !o [23] n31
  t110 = add(t110,8) !o [24] n32
  t70 = add(t70,4) !o [25] n34
  t111 = add(t111,4) !o [26] n35
  t109 = add(t109,4) !o [27] n36
  t60 = cmp(t68,t59) ! [28 22] n38
  -t150 = ble,pn(t60,B1) ! [29 28] n40
  -t152 = nop() ! [30]

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Figure 6

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B1:
!(ki=if,fl=HTRK,op=43,su=[B1,B8],pr=[B0,B1])
t113 = lddf(t110) !o [1] n1
t114 = fcmpd(t113,t38) ! [2 1] n3
P7 = mov(1) ! [3] n5
P7 = move(t114,0)! [4 2] n7
P6 = mov(0) ! [5] n8
P5 = mov(0) ! [6] n8
P4 = mov(0) ! [7] n8
P3 = xor(P7,1) ! [8 4] n9
t19 = lduwa(t70) ! [9] n11
t60 = cmp(t19,0) ! [10 9] n12
Q2 = mov(1) ! [11] n5
Q2 = movl(t60,0) ! [12 10] n13
P6 = movrnz(P7,Q2) ! [13 4 12] n14
Q2 = xor(P6,1) ! [14 13] n15
P5 = movrnz(P7,Q2) ! [15 4 14] n16
t126 = fcmped(t113,t20) ! [16 1] n18
Q3 = mov(1) ! [17] n5
Q3 = movl(t126,0) ! [18 16] n19
P5 = movrnz(P6,Q3) ! [19 13 18] n20
Q3 = xor(P5,1) ! [20 19] n21
P3 = movrnz(P6,Q3) ! [21 13 20] n22
t19 = lduwa(t109) ! [22] n24
t60 = cmp(t19,0) ! [23 22] n25
Q4 = mov(1) ! [24] n5
Q4 = movne(t60,0)! [25 23] n26
P4 = movrnz(P5,Q4) ! [26 19 25] n27
t19 = lduwa(t111) ! [27] n29
t176 = lduwa(t109)! [28] n24
t176 = movrnz(P4,t19) ! [29 26 27] n30
-t140 = st(t176,t109) ! [30 29] n31
t145 = lddfa(t71) ! [31] n33
t177 = lddfa(t110) ! [32] n34
t177 = movrnz(P3,t145) ! [33 21 31] n35
-t147 = stdf(t177,t110) ! [34 33] n36
t68 = add(t68,1) !o [35] n38
t71 = add(t71,8) !o [36] n40
t110 = add(t110,8)!o [37] n41
t70 = add(t70,4) !o [38] n43
t111 = add(t111,4)!o [39] n44
t109 = add(t109,4)!o [40] n45
t60 = cmp(t68,t59)! [41 35] n47
-t150 = ble,pn(t60,B1) ! [42 41] n49
-t152 = nop() ! [43]

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Figure 7

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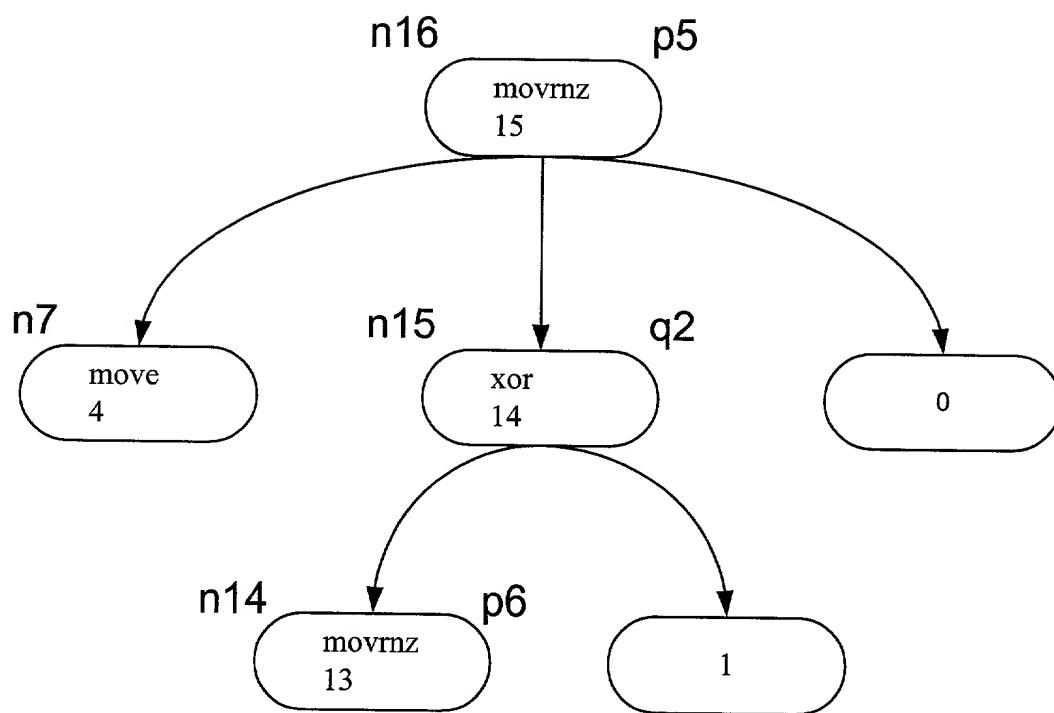
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B1: !(ki=if,fl=HTRK,op=35,su=[B1,B8],pr=[B0,B1])
  t113 = ldd(t110)
  t114 = fcmpd(t113,t38)
  P7 = mov(1)
  P7 = move(t114,0)
  t19 = lduwa(t70)
  Q2 = srl(t19,31)
  P6 = andn(P7,Q2)
  P5 = andn(P7,P6)
  W7 = fcmped(t113,t20)
  Q3 = mov(1)
  Q3 = movl(W7,0)
  P5 = movrnz(P6,Q3)
  Q6 = andn(P6,P5)
  Q5 = or(P6,P7)
  P3 = orn(Q6,Q5)
  Q4 = lduwa(t109)
  Q4 = movrnz(Q4,1)
  P4 = andn(P5,Q4)
  t19 = lduwa(t111)
  W11 = lduwa(t109)
  W11 = movrnz(P4,t19)
  -t140 = st(W11,t109)
  t145 = lddfa(t71)
  W13 = lddfa(t110)
  W13 = fmovrdnz(P3,t145)
  -t147 = std(W13,t110)
  t68 = add(t68,1)
  t71 = add(t71,8)
  t110 = add(t110,8)
  t70 = add(t70,4)
  t111 = add(t111,4)
  t109 = add(t109,4)
  t60 = cmp(t68,t59)
  -t150 = ble,pn(t60,B1)
  -t152 = nop()

```

Figure 8





**Figure 9**

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B1:
!(ki=if,fl=HTRK,op=29,su=[B1,B8],pr=[B0,B1])
t113 = ldd(t110)
t114 = fcmpd(t113,t38)
P7 = tfbe(t114,0)
t19 = lduwa(t70)
Q2 = srl(t19,31)
P6 = andn(P7,Q2)
P5 = andn(P7,P6)
W7 = fcmped(t113,t20)
Q3 = tfbl(W7,0)
P5 = movrnz(P6,Q3)
Q6 = andn(P6,P5)
Q5 = or(P6,P7)
P3 = orn(Q6,Q5)
Q4 = lduwa(t109)
Q4 = movrnz(Q4,1)
P4 = andn(P5,Q4)
t19 = lduwa(t111)
-t140 = st(t19,t109) &P4
t145 = ldda(t71)
-t147 = std(t145,t110)    &P3
t68 = add(t68,1)
t71 = add(t71,8)
t110 = add(t110,8)
t70 = add(t70,4)
t111 = add(t111,4)
t109 = add(t109,4)
t60 = cmp(t68,t59)
-t150 = ble,pn(t60,B1)
-t152 = nop()

```

Figure 10